

2.1 Inductive Reasoning and Conjecture

Oct 1-7:06 AM

Conjecture -educated guess
based on known information

Inductive reasoning -
reasoning using a # of
examples to make a
prediction

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Patterns:

Ex 1: 1, 3, 6, 10, 15, ____ **21**

Ex 2: A, B, B, C, C, C, D, D, D, D, _____ **E, E, E, E, E**

Ex 3: $1 \times 9 + 2 = 11$

$12 \times 9 + 3 = 111$

$123 \times 9 + 4 = 1111$

$1234 \times 9 + 5 = 11111$

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Ex 4: 3, 5, 7, ____ **9**

3, 5, 7, 11

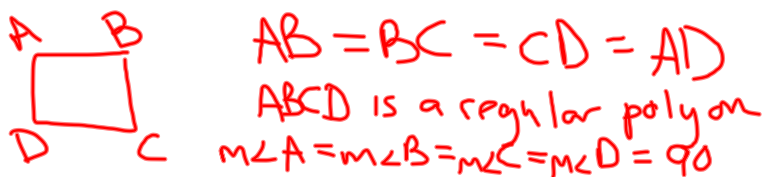
Ex 5:



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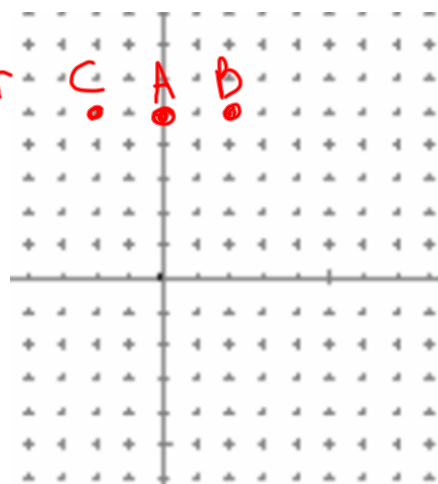
Make a conjecture based on the given information.

Ex 6: ABCD is a square



Ex 7: $A(0,5)$ $B(2, 5)$ $C(-2, 5)$

A, B, C are collinear



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Counterexample -one false
 example that shows a conjecture
 is not true

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Determine whether each conjecture is *true* or *false*. Give a counterexample for any false conjecture.

8. Given: x is an integer.

Conjecture: $-x$ is negative.

False
 $x = -3$

9. Given: WXYZ is a rectangle.

Conjecture: $WX = YZ$ and $WZ = XY$

$-x = 3$



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Make a conjecture about the next item in each sequence.

4. ,

5. $-8, -5, -2, 1, 4$

ex

J, F, M, A, M
9, 6, 5, 4, 3

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Make a conjecture about the next item in each sequence.

11.



13. 1, 2, 4, 8, 16

32

15. $\frac{1}{3}, 1, \frac{5}{3}, \frac{7}{3}, 3$

$\frac{11}{3}$

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Determine whether each conjecture is *true* or *false*. Give a counterexample for any false conjecture.

29. Given: $\angle 1$ and $\angle 2$ are complementary angles.

Conjecture: $\angle 1$ and $\angle 2$ form a right angle.

False



30. Given: $m + y \geq 10, y \geq 4$

Conjecture: $m \leq 6$

False

* $m = 9$
 $y = 4$

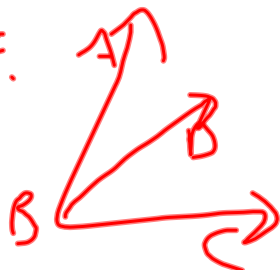
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#s 12, 14, 16, 24,

~~29~~, 31, 33, 34, 35

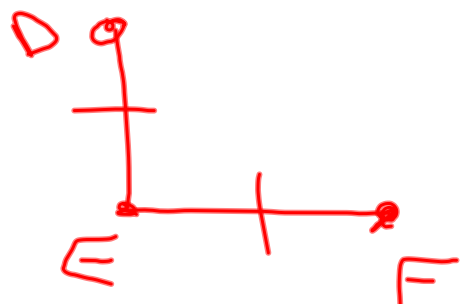
24.



$$\angle ABD \cong \angle DBC$$

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34.



35.



Oct 1-8:20 AM